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Wireless Home Automation Using Wi-Fi Enable Switch and Mobile

Pratiksha Shinde[1], Geetanjali Shiradhonkar[2] & Sneha Saluke[3]
[1,2,3]Department of Electronics and Telecommunication Engineering
[1,2,3]Bharati Vidyapeeth's College of Engineering for Women, Pune-43

Abstract*: This paper presents a design to implementation of new home automation system that uses Wi-Fi technology as a network connecting its parts. The proposed system consists of two main components; the first part is the transmitter and which presents system that manages, controls, users' home application. Users and system administrator can locally (LAN) or remotely (internet) manage and control system . Second part is hardware interface module, which provides appropriate interface to wi-fi switch and actuator of home automation system. most of home automation system in the market the proposed system is scalable and one server can manage many hardware interface modules are exists on Wi-Fi network area. These System supports home automation devices like power management components and speed of components. This present system is better from the scalability and flexibility point of view than the commercially available home automation systems.*

I. Introduction

Home automation focus on comfort that can control elements of home environment such as lights, fans, air conditioners, television sets, electronic doors, security cameras, audio/visual equipment, computer systems *etc*. There are so many benefits to use this system, compared to conventional systems. Our present system is to develop a cost effective & protected solution that will provide controlling of home and office appliances remotely in the absence of homeowner a well data communication facility. Though device connected as home and office appliances consume the electrical power. These are devices should be controlled as well as switch turn on and turn off is required. Most of the time it was done manually. Now it is a necessity to control devices more effectively and efficiently at anytime and anywhere in the home very easily.

This system is design for the controlling arbitrary devices by use Wi-Fi and internet network and also provides data communication facilities. There are so many different types of home automation systems available**.** For the most commercially available home automation systems, these appliances usually have to be specially design for compatible with each other and with the control unit. There are Most commercially available home automation systems are all-in-one solutions which require that all controllable appliances are from the same company, or must be approve the as compatible with said company's system. Moreover these systems normally come with a proprietary, dedicated device which acts as the control centre.

II.PAST WORK

Many research papers from reputed national and international journals are surveyed and few are presented here:

F. Dominguez, A. Touhafi, J. Tiete, M. GUier, and K. Steenhaut [1] proposed a System in which Migration from a Legacy Wireless Technology to ZigBee for a Home Automation .In this system they are using the ZigBee technology for wireless home automation

C.S.Choy[2] proposed a System in which "An Infra-red Remote Control System Designed for Universal Control

Prof. R.S. Suryavanshi1, Kunal Khivensara, Gulam Hussain, Nitish Bansal, Vikash Kumar[4] has implemented the Home Automation System Using Android and WiFi we propose a system, which is very different than the existing system. We are going to implement it with the help of direct Wi-Fi (Wireless Federation), which fits the bill of WLAN 802.11 standard. The main advantage of this system isthat it can be implemented with a wider range of not more than200 meters.

Wan-Ki Park, Chang-Sic Choi, Jinsoo Han, and Intark Han,[3] "Design and Implementation of ZigBee based URC Applicable to Legacy Home Appliances

III.PROPOSED.SYSTEM DESIGN

This project is designed for the easy of human being in order to operate the electronic appliances from a distance without using Wi-Fi. The system consists of

Wi-Fi trancereceiver dummy switch, microcontroller, relay module & switches. Also we are using mobile app for controlling switches. The code is given to the microcontroller. Depending on the output of the microcontroller the relay module selects the desired switch so that fan & light will operate. The speed of the fan can be controlled by through wireless. The light dimming is also controlled by wireless operator. the systems were developed in this regard but those systems had to be deployed on Internet and heavy machineries like a big Personal Computer. Our system will be free from all this components, which, indirectly suggests that our system has a good quality of portability. The mobile application can also extend the security of the system via an implementation of the protected application.This fig1 show that,

1] Connected Wi-Fi switch and mobile through the Wi-Fi.

2] The first Wi-Fi switch are operated the ON and OFF condition.

3]The second Wi-Fi switch are operated as speed control of FAN.

4] the third Wi-Fi switch are operated as intensity of light

5]The same operating system are applying to the mobile

IV.BLOCK DIAGRAM

V. BLOCK DIAGRAM DESCRIPTION

A. Mobile Apps

Through the mobile apps we can TURN ON and TURN OFF the switch and also we can control intensity of light as well as control the speed of FAN. Android mobile Apps is an open source and one of the best Linux based operating system for mobile device such as smart phones and the computers.

B. WI-FI Transmitter

WI-FI Transmitter is work as similar to the mobile apps. In WI-FI transmitter it consists of three switches that is TURN ON, TURN OFF and control speed of fan. First switch used to TURN ON the switch, second switch is used to TURN OFF the switch and last third switch used to control the speed of FAN.

C.WI-FI Receiver

The Wi-Fi Transmitter and Wi-Fi receiver both are connected to the Wi-Fi. Wi-Fi receiver detects the signal and it is applying to the Node MCU.

D. NODE MCU

Node MCU is a one of the best open source IOT platform. Node MCU include the firmware and hardware which can be based on ESP12 module. Node MCU was created shortly after the ESP8266.Node MCU is one of the best operating system. its memory is 128kbyte.the type of node MCU single board microcontroller.

E. Relay Driver(ULN-2003)

Relay driver is an electromagnetic switch. which can be used to control the speed of fan and to control the intensity of light. In relay driver if we want to use low voltage circuit to switch on and off light bulb.

F. Relay

Relay is an electrically operated switch. Many relays used an electromagnet to mechanically operated as a switch relays are used to control a circuit by a separate low power signal.

G.dimmer

Dimmer is a used to light and speed are manufactured using a Triac or Thyristor as power control device

VI.RESULT

Application / Mode	FAN	LIGHT	LIGHT
WI-FI switch	1)ON/OFF 2)speed	1)ON/OFF 2)intensity	ON/OFF
Android app	1)ON/OFF 2)Speed	1)ON/OFF 2)Intensity	ON/OFF

VII. FUTURE SCOPE

Present system a low cost, secure, ubiquitously accessible, auto configurable, remotely controlled solution. The approach discussed in the projects has achieved the target to control home appliances remotely using the Wi-Fi technology to connects system parts, satisfying user needs and requirements. Wi-Fi technology capable solution has proved to be controlled remotely, provide home applications cost-effective as compared to the previous systems. Hence we can conclude that the required goals and objectives of home automation system have been

achieved. The system architecture and design were discussed, and prototype presents the basic level of home appliance control and remote monitoring has been implemented. Finally, the proposed system is better from scalability and flexibility point of view than the commercially available home automation systems.

VIII. CONCLUSIONS

These had more importance than any other technologies due to its user-friendly nature. These can be used as a replacement of the existing switches in home which produces sparks and also results in fire accidents in few situations. The Wi-Fi enable switch can be use to the operate home applications in various place in the home.

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